BRUHATH BENGALURU MAHANAGARA PALIKE

QUALITY CONTROL TEST REPORT

Name of Work: Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.

Civil Aim Consultants & Engineers

(Buildings Geo-Test & Highway Materials Testing Laboratory)

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No.01, Satvika Nilaya,Opp.Widia Poorna Prajna School,Ramaiah Layout Nagasandra Bengaluru -560073.

QC-ABSTRACT

Name of Work:- Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.

Sl No.	Item	Quantity As Per BOQ	Required No's of tests	Actual No's of tests	Tests
1	PCC 1:3:6	87.30 Cum	1	1	Cement
					Sand, Aggregates
2	M30	218.40 Cum	8	8	-
3	WMM	353.70 Cum			-
	Gradation		2	2	
	Aggregate Imoact Value		1	1	
	Shape test		1	1	
	Atterberg Limit		2	2	
4	DBM	51.34 Cum			-
	Quality Binder		1	1	
	Aggregate Imoact Value		1	1	
	Shape test		1	1	
	Specific Gravity		1	1	
	Gradation		1	1	
	Stability of Mix		1	1	
	Bitumin Content		1	1	

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Job No.: CACE/BBMP/MDGM/W.No.13/2021-22 Date : 20.10.2021

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Sri. M D Gnanendra Murthy,** Contractor, Bangalore.

Name of Work : Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 20.10.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2536	2720	27.2	72.8	60-80
11.2	2160	4880	48.8	51.2	40-60
4.75	1895	6775	67.8	32.3	25-40
2.36	1150	7925	79.3	20.8	15-30
0.600	589	8514	85.1	14.9	8-22
0.075	1210	9724	97.2	2.8	0-5

Note:

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2. The results indicated above are based on the tests carried out on the samples Collected at the Site.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

AE W-13

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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PH.No: 9591618639 GST IN:29CNWPD9510K1ZB Email:civilaimconsultants@gmail.com

Job No.: CACE/BBMP/MDGM/W.No.13/2021-22

GRADATION FOR WMM

Date : 20.10.2021

Client Agency : **Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Name of Work : **Sri. M D Gnanendra Murthy,** Contractor, Bangalore.

: Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.

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Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	198	198	2.0	98.0	95-100
22.4	2520	2718	27.2	72.8	60-80
11.2	2168	4886	48.9	51.1	40-60
4.75	1859	6745	67.5	32.6	25-40
2.36	1165	7910	79.1	20.9	15-30
0.600	575	8485	84.9	15.2	8-22
0.075	1215	9700	97.0	3.0	0-5

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Job No.: CACE/BBMP/MDGM/W.No.13/2021-22 — 26.11.2021

Specific Gravity And Water Absorption Test
IS: 2386 Part III

Client	**Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Sri. M D Gnanendra Murthy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.
Type of Mix	Bituminous Concrete
Date of Testing	24.11.2021 to 26.11.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2023	2025	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_S$ g	1266	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	750	750	
6	Weight of oven dried aggregate	W_4 g	2009	2010	2011	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.679	2.680	2.681	2.680
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.704	2.709	2.714	2.709
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.35%	0.40%	0.45%	0.40%

Comments:
→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No.: CACE/BBMP/MDGM/W.No.13/2021-22 Date: 02.12.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. M D Gnanendra Murthy,** Contractor, Bangalore.
Name of the Work	:	Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	02.12.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.84	10.25	9 Kn (min)
2	Marshal flow, mm	2.63	3.82	2 – 4
3	Percent air voids in Mineral Aggregate	13.59	14.15	13 – 15
4	Voids in Compacted Mix	3.84	4.57	3 – 6
5	Percent Voids filled with Bitumen	68.96	69.58	65 - 75
6	Density, g/cc	2.26	2.27	--

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Road,

Job No.: CACE/BBMP/MDGM/W.No.13/2021-22 24.11.2021

Aggregate Impact Value

IS: 2386 Part IV

Client	**Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Sri. M D Gnanendra Murthy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	24.11.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297	
4	Aggregate Impact value = percent fines	22.45	22.86	**22.66**
	100* (W_2/W_1) percent			

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Gradation Test

IS : 2386 Part I

24.11.2021

Client	**Assistant Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Sri. M D Gnanendra Murthy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads at 5th, 6th, 8th, 12th cross, Shivanandha store road, Maheshwara Temple and Surrounding area in Ward No.13 Shettyhalli Sub Division, BBMP, Bangalore.
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	24.11.2021

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	470	9.40	9.40	90.60	79 - 100	
9.5	439	8.78	18.18	81.82	70 - 88	
4.75	662	13.24	31.42	68.58	53 - 71	
2.36	650	13.00	44.42	55.58	42 - 58	
1.18	525	10.50	54.92	45.08	34 - 48	
0.600	563	11.26	66.18	33.82	26 - 38	
0.300	486	9.72	75.90	24.10	18 - 28	
0.150	392	7.84	83.74	16.26	12 - 20	
0.075	520	10.40	94.14	5.86	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	589	11.78	11.78	88.22	79 - 100	
9.5	482	9.64	21.42	78.58	70 - 88	
4.75	636	12.72	34.14	65.86	53 - 71	
2.36	556	11.12	45.26	54.74	42 - 58	
1.18	640	12.80	58.06	41.94	34 - 48	
0.600	526	10.52	68.58	31.42	26 - 38	
0.300	389	7.78	76.36	23.64	18 - 28	
0.150	289	5.78	82.14	17.86	12 - 20	
0.075	480	9.60	91.74	8.26	4 - 10	

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